Remarks

Applicant respectfully requests that this Response After Final Action be admitted under 37 C.F.R. § 1.116.

Applicant submits that this Response presents claims in better form for consideration on appeal. Furthermore, applicant believes that consideration of this Response could lead to favorable action that would remove one or more issues for appeal.

No claims have been amended. No claims have been cancelled. Therefore, claims 1-29 are presented for examination.

Claim 1 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Horiguchi et al., U.S. Patent No. 4,561,103 ("Horiguchi") in view of Szeliski et al., U.S. Patent No. 6,993,156 ("Szeliski") in further view of Davidson et al., U.S. Patent No. 6,952,485 ("Davidson"). Applicant submits that the present claims are patentable over any combination of Horiguchi, Szeliski and Davidson.

Horiguchi discloses a technique for inspecting picture patterns on prints which are being run in a rotary press, and more particularly to a method in which reference data read out of a reference print is written in a memory, and inspection data read out of a print under inspection is compared with the reference data for every picture element for instance to determine whether or not the print is acceptable, and an apparatus for practicing the method. The specific feature of the invention resides in that (1) in reading the above-described data a print running speed or the position of a picture pattern in the direction of width is detected to rewrite the reference data, (2) in data comparison, the comparison level is optionally set up, and (3) the data comparison is carried out not only for every picture element, but also for the sum of picture elements over the entire picture

pattern and for the sum of picture elements arranged linearly in the print running direction. See Horiguchi at Abstract.

Szeliski discloses using an affine transform. See Szeliski at col. 13, ll. 10-36.

Davidson discloses a streaming mode encoder that receives incoming, sequential bands of an image. It buffers these bands in a band FIFO that is at least one block in height. A block in the context of image watermark encoding refers to the size of image data into which a watermark encoder module embeds an entire watermark signal instance. The FIFO includes two separate buffers, enabling the embedder to load one with incoming data while performing embedding operations on image blocks in the other one. See Davidson at col. 5, ll. 42-51.

Claim 1 of the present application recites:

> A system for detecting errors in a printed copy, the system comprising:
> one or more computer memories having one or more digitized source images;
> one or more scanners that scan one or more printed copies to create one or more corresponding scanned images;
> an alignment process that creates an initial replacement image from the scanned image by performing an interpolation to generate additional lines in the scanned images to correspond to the digitized source images, the replacement scanned image being aligned with the digitized source image on a page by page, line by line, and pel by pel basis by using an affine transform to compute points of interest in the scanned image that correspond to each pel location in the digitized source image; and
> a comparison process that compares one or more source pels of the digitized source image with one or more corresponding scanned pels of the initial replacement image to determine differences, the differences being defects in the printed copies.

Applicant submits that Horiguchi, Szeliski and Davidson each fail to disclose or suggest a process of creating an initial replacement image from a scanned image by performing an interpolation to generate additional lines in the scanned images to correspond to the digitized source images. The Final Office Action asserts that this feature is disclosed in Davidson by a streaming mode encoder. See Final Office Action at Page 9, ll. 4-11.

Applicant respectfully disagrees with such an assertion. Particularly, the encoder in Davidson is disclosed as buffering bands of an image in a band FIFO and loading one buffer in the FIFO with incoming data while performing embedding operations on image blocks in the other FIFO. Therefore, the passage of Davidson relied on by the Examiner fails to disclose, or reasonably suggest, a process of ***generating additional lines in a scanned images to correspond to digitized source images***. Thus, claim 1 is patentable over the combination of Horiguchi, Szeliski and Davidson since none of the references disclose or suggest creating an initial replacement image from a scanned image by performing an interpolation to generate additional lines in the scanned images to correspond to the digitized source images.

Claims 2-10 and 11-29 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Hansen et al., U.S. Patent No. 7,013,803 ("Hansen") in view of Davidson. Applicant submits that the present claims are patentable over Hansen in view of Davidson.

Claim 2 of the present application recites:

> A system for detecting errors in a printed copy, the system comprising: one or more computer memories having one or more digitized source images;

> a digital printer that converts the digitized source images into one or more printed copies;
>
> one or more scanners that scan the printed copies to create one or more corresponding scanned images;
>
> an alignment process creates a replacement image from the scanned image by performing an interpolation to generate additional lines in the scanned images to correspond to the digitized source images, the replacement image being aligned with the digitized source image on a page and page, line by line, and pel by pel basis; and
>
> a comparison process that compares one or more source pels of the digitized source image with one or more corresponding scanned pels of the replacement image to determine differences, the differences being defects in the printed copies.

Hansen discloses a color registration control system for a printing press including an area scanner for acquiring an image of a paper substrate and an image processing system adapted to receive the image and process the image to determine any color register error. See Hansen at Abstract. Nevertheless, there is no disclosure or suggestion in Hansen of *creating an initial replacement image from a scanned image* ***by performing an interpolation to generate additional lines in the scanned images to correspond to the digitized source images***.

As discussed above, Davidson fails to disclose or suggest such a process. Thus, any combination of Hansen and Davidson would fail to disclose or suggest the process. As a result, claim 2 and its dependent claims are patentable over Hansen in view of Davidson.

Claim 23 recites:

> A method for aligning content on a printed page, the method comprising the steps of:
>
> embedding two or more synchronization-strips into a digitized source image to form a marked source image to locate lines in a first stream of the digitized source

> image with a second stream of the digitized source image, the synchronization-strips having a counter pattern at defined intervals to provide a unique page count; and
>
> printing the marked source image to form a printed copy in the margins of a printed page, the embedded synchronization-strips containing line identification of one or more lines of the printed copy.

Applicant submits that a combination of Hansen and Davidson also fails to disclose or suggest embedding two or more synchronization-strips into a digitized source image to form a marked source image to locate lines in a first stream of the digitized source image with a second stream of the digitized source image, wherein the synchronization-strips have a counter pattern at defined intervals to provide a unique page count.

First, Hansen fails to disclose or suggest embedding synchronization-strips into a digitized source image to locate lines in a first stream of the digitized source image with a second stream of the digitized source image, as asserted in the Final Office Action. See Final Office Action at Page 17, lines 12-18.

Hansen discloses using color register marks to control color register by comparing the color register marks to a predefined register mark pattern. If the printed color register marks match the predefined pattern, color is in register. A camera assembly locates and measures the relationship of the printed marks of each color relative to each other and relative to the predefined pattern. The difference between the locations measured by the camera assembly and the predefined pattern is considered a register error. See Hansen at col. 6, ll. 62 – col. 7, ll. 29.

Applicant submits that such a process of measuring color register using color register marks cannot be considered equivalent to a process of using *synchronization-*

strips in a digitized source image to ***locate lines in a first stream of the digitized source image with a second stream of the digitized source image***.

Second, Davidson fails to disclose or suggest synchronization-strips that have a counter pattern at defined intervals to provide a unique page count, as asserted in the Final Office Action. See Final Office Action at Page 18, lines 4-13.

Davidson discloses a watermark encoder that can be used to embed tracer data in an image as it is being printed or transferred. The forensic tracer data may include: data identifying the date of an activity from a clock in the imaging device or host computer of the driver, data identifying the serial number of a computer system, data identifying a serial number of a system component, data identifying a user of the computer system, data identifying a file, data indicating the nature of a detected event, data indicating the status of the computer system, data from a registry database, data relating to an external network connection, and data derived from a digital watermark payload. See Davidson at col. 9, ll. 45-56. Nevertheless, there is no disclosure in Davidson of ***synchronization-strips that have a counter pattern at defined intervals to provide a unique page count***.

Third, it would not be obvious to one of ordinary skill in the art to combine Hansen and Davidson and to disclose the present claims. Particularly, it would not be obvious to combine the color register mechanism with the watermark encoder since they are used to implement two separate functions. As discussed above, Hansen uses color register marks to measure color register, while Davidson uses watermarks to embed data in an image. Accordingly, one of ordinary skill in the art would not be motivated to combine the color register mechanism taught in Hansen with the watermarks of Davidson.

For the foregoing reasons, claim 23 and its dependent claims are patentable over Hansen in view of Davidson.

Independent claim 27 includes limitations similar to those recited in claim 23. Therefore claim 27 is patentable over Hansen in view of Davidson for reasons similar to those discussed above with respect to claim 23.

Claim 28 recites a printer that prints a marked source image with embedded synchronization-strips in a sacrificial portion of a page to form a printed copy. Applicant submits that neither Hansen nor Davidson disclose or suggest such a feature. Therefore, claim 28 and its dependent claim are patentable over Hansen in view of Davidson.

Applicant respectfully submits that the rejections have been overcome, and that the claims are in condition for allowance. Accordingly, applicant respectfully requests the rejections be withdrawn and the claims be allowed.

The Examiner is requested to call the undersigned at (303) 740-1980 if there remains any issue with allowance of the case.

Please charge any shortage to Deposit Account No. 50-3669.

Respectfully submitted,
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